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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,386

10/02/2006

Gunther Leising

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EXAMINER

LI, MEIYA

ART UNIT

PAPER NUMBER

2811

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,386	Applicant(s) LEISING, GUNTHER	
	Examiner MEIYA LI	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-15 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,10,12,13 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 29, 2008 has been entered.

Election/Restrictions

2. Applicant's election without traverse of species II, claims 9, 10, 12, 13 and 15, in the reply filed on January 26, 2009 is acknowledged.
3. Claims 11 and 14 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 26, 2009.

Claim Objections

4. Claim 13 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 13 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification for the claim limitations of "the additional board comprises on its upper surface further contact areas which are soldered to the rear side contacts of the light emitting diode," as recited in claim 13.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 9, 10, 12, 13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. The claimed limitation of "a light emitting diode comprising at least one light emitting diode die", as recited in claim 9, is unclear as how a diode can comprise a plurality of dies.

10. The claimed limitation of "at least one light emitting diode", as recited in claim 13, is unclear as to which light emitting diode applicant refers.

11. The claimed limitation of "its upper surface", as recited in claim 13, is unclear as to which element's upper surface applicant refers.

12. The claimed limitation of "the rear side contacts of the light emitting diode", as recited in claim 13, is unclear as to which element is the rear side contacts of the light emitting diode.

13. The claimed limitation of "at least one of the through-contacts", as recited in claim 15, is unclear as to which through-contacts applicant refers.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claim 9, as best understood, is rejected under 35 U.S.C. 102(b) as being anticipated by Suehiro et al. (2002/0001192).

Suehiro et al. show in Figs. 1A-1D, 4 and related text a light emitting diode, comprising at least one light emitting diode die 3, arranged on a light emitting diode printed circuit board 2A by means of a die attach 11, the light emitting diode printed circuit board comprising at a lower surface thereof rear side contacts 6,

wherein the rear side contacts at least partially overlap with contours of the light emitting diode die and are formed in such a way as to overlap with at least half of the lower surface of the printed circuit board, and

wherein the printed circuit board comprises a plurality of through-contacts 10 thermally and electrical connecting the real side contacts to contact areas formed on an upper surface of the printed circuit board.

Claim Rejections - 35 USC § 103

16. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

17. Claims 10 and 12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Suehiro et al. (2002/0001192) in view of Shimizu et al. (2003/0189829).

As for claim 10, Suehiro et al. disclosed substantially the entire claimed invention, as applied to claim 9 above, except the light emitting diode printed circuit board is a metal core printed circuit board and wherein the die is located on the metal core.

Shimizu et al. teach the light emitting diode printed circuit board 22 is a metal core printed circuit board and wherein the light emitting die 12 is located on the metal core 22 (Fig. 5A; [0164]).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made to include the metal core PCB and wherein the die is located on the metal core, as taught by Shimizu et al., in Suehiro et al.'s device, in order to improve the heat dissipation of the device.

As for claim 12, the prior art combined device shows the light emitting diode die is mounted face down on the light emitting diode printed circuit board.

18. Claims 13 and 15, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Suehiro et al. (2002/0001192) in view of Durocher et al. (6,614,103).

As for claim 13, Suehiro et al. disclosed substantially the entire claimed invention, as applied to claim 9 above, a light emitting diode light source having at least one light emitting diode 1 arranged on an additional board 21.

Suehiro et al. do not disclose the additional board comprises on its upper surface further contact areas which are soldered to the rear side contacts of the light emitting diode,

wherein a total surface area of the further contact areas is at least half of the area of the lower surface of the light emitting diode printed circuit board, and

wherein the additional board comprises a further plurality of through-contacts thermally and electrically connecting at least one of the further contact areas to a solder area formed at the bottom of the additional board.

Durocher et al. teach in Fig. 4 and related text the additional board 41 comprises on its upper surface 43 further contact areas 50 which are soldered to the rear side contacts of the light emitting diode, wherein the additional board comprises a further plurality of through-contacts 51 thermally and electrically connecting at least one of the further contact areas to a solder area 47 formed at the bottom 45 of the additional board.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made to form a additional board structure, as taught by Durocher et al., in Suehiro et al.'s device, in order to improve the heat dissipation of the device.

Therefore, the prior art combined device shows a total surface area of the further contact areas is at least half of the area of the lower surface of the light emitting diode printed circuit board.

As for claim 15, Suehiro et al. and Durocher et al. disclosed substantially the entire claimed invention, as applied to claim 13 above, except at least one of the through-contacts has a diameter of less than 100 μm .

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include the diameter of the at least one of the through-contacts 100 μm thick, in order to optimize the performance of the device. Furthermore, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It has been held in that the applicant must show that a particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Note that the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some dimensional limitation or other variable within the claims, patentability cannot be found. The instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the

dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Response to Arguments

19. Applicant's arguments filed on January 26, 2009 have been fully considered but they are not persuasive.

Applicant argues that the claimed limitation of "a light emitting diode comprising at least one light emitting diode die", as recited in claim 9, is clear because "paragraphs [001] and [022] of the specification which clarify how a diode can comprise a plurality of dies.

Neither paragraph [001] nor paragraph [022] of the specification which clarify how a diode can comprise a plurality of dies.

Applicant argues that the claimed limitations of "at least one light emitting diode", "a light emitting diode", "the light emitting diode", as recited in claims 13 and 15, are clear.

"A light emitting diode" is recited multiple times in the same claim or on the dependent claim. Therefore, it is unclear as to which light emitting diode applicant refers.

20. Rest of applicant's arguments with respect to claims 9, 10, 12, 13 and 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEIYA LI whose telephone number is (571)270-1572. The examiner can normally be reached on Monday-Friday 7:30AM-5:00PM Eastern Standard Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on (571) 272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. L./
Examiner, Art Unit 2811
3/25/2009
/Ori Nadav/
Primary Examiner, Art Unit 2811